According to a special report received, severe storms occurred in the vicinity of the Black Sea on the 27th and 31st, respectively.

Waterspout.—American steamship *Excellency*, Capt. C. D. Hermanson; observer, R. Lindquist, second mate. Gibraltar to New York:

On August 2d at 6:10 p. m. (9:15 p. m., G. C. T.) observed a small waterspout in 41° 31′ N., 40° 50′ W. Barometer 30.34 inches. Temperature of air 78°. Atmosphere clear. Wind WSW., 3. Clouds cu.-nb. 3. The waterspout did not appear to reach the level of the sea, but there was a marked disturbance on the surface. As the clouds were moving rapidly, cloud and waterspout disappeared over the horizon in about five minutes after the latter was sighted.

OCEAN GALES AND STORMS, AUGUST, 1929

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN			° ′	° ′				*Inches*					
Saco, Am. S. S.	Rotterdam	New York	29 61 N.	50 00 W.	Aug. 3	4 a., 4	Aug. 4	29.55	SW	W., 6	NW	NW., 9	SW.-W.-NW.
West Zeda, Am. S. S.	Galveston	Rotterdam	39 30 N.	60 00 W.	4	5 p., 4	5	29.78	SSW	SSW., 8	SW	SSW., 8	Steady.
Balsam, Am. S. S.	New York	Glasgow	40 55 N.	54 08 W.	5	Noon, 5	5	29.98	S	S., 7	S	S., 8	Do.
Sarcoxie, Am. S. S.	Havre	New York	49 43 N.	13 46 W.	6	Noon, 6	6	29.81	NW	NW., 6	N	N., 8	Do.
Inkum, Br. S. S.	North Shields	do	58 13 N.	17 13 W.	18	8 a., 19	20	29.77	WSW	WSW., —	W	—, 8	WSW.-WNW.
City of Flint, Am. S. S.	Hull	Philadelphia	56 45 N.	27 54 W.	21	8 a., 22	22	29.55	W	W., 8	WNW	—, 8	W.-WNW.
Yselhaven, Du. S. S.	Emden	New York	58 49 N.	16 55 W.	21	10 a., 22	23	29.39	WSW	WSW., 8	W	WSW., 8	Steady.
Cameronia, Br. S. S.	Glasgow	do	54 39 N.	25 06 W.	26	8 p., 26	27	29.43	W	W., 3	N	NW., 8	W.-NW.
Albatross II, U. S. S.	Nantucket	Bermuda	37 24 N.	66 37 W.	28	Noon, 28	28	29.89	SW	SW., 8	WSW	SW., 8	SW.-WSW.
Exchange, Am. S. S.	Gibraltar	Boston	42 55 N.	46 21 W.	29	5 p., 29	29	29.91	SSW	SSW., 8	W	SSW., 8	Steady.
West Loquassuck, Am. S. S.	Port Said	New York	38 33 N.	68 48 W.	30	Noon, 30	30	29.81	NE	NE., 8	NNE	NE., 8	Do.
Glorinia, Br. S. S.	Philadelphia	Hamburg	46 54 N.	29 00 W.	30	8 a., 31	31	29.47	S	E., 7	NNE	E., 8	
Examelia, Am. S. S.	Seville	New York	40 50 N.	60 31 W.	31	Noon, 31	Sept. 1	29.81	S	SW., —	W	—, 9	
Anacortes, Am. S. S.	Hull	Philadelphia	49 30 N.	48 48 W.	31	11 p., 31	1	29.96	SW	—, 9	SE	—, 9	SE.-SW.
Exchange, Am. S. S.	Gibraltar	Boston	42 50 N.	56 10 W.	31	11 a., 31	1	29.69	SW	SW., 7	WNW	W., 8	SW.-WNW.
NORTH PACIFIC OCEAN													
Mobile City, Am. S. S.	San Pedro	Balboa	20 34 N.	107 05 W.	Aug. 2	4 a., 3	Aug. 3	29.77	ESE	ESE., 7	SE	ESE., 8	ESE.-SE.
Do	do	do	17 10 N.	101 28 W.	5	8 a., 5	5		SE	SE., 8	ESE	ESE., 8	ESE.-SE.
Sylvan Arrow, Am. S. S.	do	do	18 06 N.	103 58 W.	2	6 a., 2	3	29.78	E	E., 8	SE	E., 8	2 pts.
Tongking, Dan. M. S.	San Francisco	do	18 43 N.	103 34 W.	2	4 a., 2	4	29.76	E	E., 5	S	E., 8	E.-S.
Ontariolite, Can. M. S.	Talara, Peru	Vancouver	18 26 N.	106 24 W.	5	—, 6	6	28.80	N	WNW., 12	S	WNW., 12	WNW.-SW.
Admiral Peoples, Am. S. S.	San Francisco	Portland	40 08 N.	124 23 W.	9	Noon, 9	9	29.84	NW	NW., 9	N	NW., 9	Steady.
Admiral Watson, Am. S. S.	Seattle	Kodiak	56 26 N.	132 36 W.	16	3 p., 16	17	29.88	SE	SE., 8	SE	SE., 9	Do.
Wisconsin, Am. S. S.	Portland	Shanghai	49 20 N.	170 46 E.	18	2 a., 18	19	29.44	S	S., 7	S	S., 8	S.-SSE.
Golden Hind, Am. S. S.	San Francisco	do	31 07 N.	172 13 E.	21	—, 21	23	29.29	ENE	ESE., 9	S	SSE., 10	ENE.-ESE.
New York, Am. S. S.	Hong Kong	San Francisco	45 06 N.	170 35 E.	25	Mdt., 25	26	29.12	SSE	SSE., —	SW	ESE., 10	ESE.-SSW.
Tatsuno Maru, Jap. S. S.	San Francisco	Balboa	17 15 N.	101 40 W.	29	4 p., 29	30	29.80	ENE	E., 8	E	E., 9	E.-SSW.
Chickasaw City, Am. S. S.	Los Angeles	do	17 24 N.	101 53 W.	29	10 a., 29	30	29.70	E	E., 6	E	E., 8	E.-ESE.
Moerdijk, Du. S. S.	Colon	Los Angeles	18 08 N.	104 14 W.	29	8 a., 30	30	29.42	ESE	NW., 9	NE	NE., 9	Backing.
Canadian Miller, Can. S. S.	Victoria	Balboa	18 22 N.	104 00 W.	30	10 a., 30	30	29.60	E	ESE., 9	SW	ESE., 9	ESE.-S.
Tsuyama Maru, Jap. S. S.	Balboa	Los Angeles	17 20 N.	101 30 W.	29	4 a., 30	31	29.72	SSE	SE., 8	E	SSE., 9	
Hampstead, Br. S. S.	Vladivostok	Puget Sound	48 49 N.	174 00 E.	28	2 p., 30	31	29.13	E	N., 5	NE	N., 8	N.-NE.
SOUTH PACIFIC OCEAN													
Maunganui, Br. S. S.	Sydney	San Francisco	21 10 S.	159 50 W.	17	6 p., 17	19	29.92	SE	E., 9	SSE	E., 9	E.-SE.
SOUTH ATLANTIC OCEAN													
Chincha, Am. S. S.	Delagoa Bay	Rio de Janeiro	29 12 S.	16 10 W.	9	1 a., 9	11	29.78	WSW	WSW., 11	SSW	WSW., 11	WSW.-SSW.

551.506 (265.2)

NORTH PACIFIC OCEAN

By WILLIS E. HURD

During August the California-Pacific anticyclone extended abnormally far into higher latitudes, and on the average for the month embraced even the eastern part of the Aleutian Islands area, the pressure at Dutch Harbor showing the extraordinarily high figure of 30.04 inches. On several days, however, cyclones of moderate intensity crossed the upper Pacific, or fluctuated over the Gulf of Alaska and neighboring coast waters of Canada and the United States.

The average center of the Aleutian cyclone which was very shallow, as in July, lay in the vicinity of Kodiak.

Barometric data for several island and coast stations in west longitudes, including Point Barrow in the Arctic Ocean, are given in the following table:

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean and adjacent waters, August, 1929*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow [1]	29.89		30.30	22d	29.42	10th.
Dutch Harbor [1 2]	30.04	+0.14	30.48	22d	29.60	2d.
St. Paul [1]	29.93	+0.17	30.48	22d	29.38	26th.
Kodiak [1]	29.88	+0.03	30.16	29th	29.42	18th.
Midway Island [1 3]	30.09	0.00	30.18	8th	29.88	28th.
Honolulu [4]	29.99	−0.01	30.10	2d	29.88	31st.
Juneau [4]	29.93	−0.09	30.25	1st	29.40	21st.
Tatoosh Island [4 5]	30.06	+0.05	30.29	19th	29.84	1st.
San Francisco [4 5]	29.96	+0.02	30.08	18th	29.78	13th.
San Diego [4 5]	29.90	+0.01	30.03	11th	29.75	31st.

[1] P. m. observations only.
[2] For 27 days.
[3] For 30 days.
[4] A. m. and p. m. observations.
[5] Corrected to 24-hour mean.

Very few days with gales seem to have occurred along the upper steamship routes. In American waters the only gale of consequence was that of the 9th when a strong northwesterly wind which attained force 9 occurred off the upper coast of California. In Alaskan waters a gale of similar force blew off the coast south of Sitka. No other gales were reported in west longitudes. In east longitudes gales were more frequent, occurring in higher latitudes along the route between Japan and the western Aleutians on the 16th to 18th, the 25th and 26th, and on the 29th. Those of the 25th and 26th attained the force of a whole gale in connection with a comparatively deep cyclone central near 45° N., 170° E.

In middle latitude routes a cyclone of some depth occurred west of the one hundred and eightieth meridian on the 21st and 22d, the American steamship *Golden Hind* encountering whole southeasterly gales on those dates near 31° N., 172° E.

Two typhoons, one of great severity, occurred in Asiatic waters. Their histories are given in the subjoined article prepared by the Rev. José Coronas, S. J., chief of the meteorological division of the Philippine Weather Bureau. At the close of the month, also, another typhoon, of intensity yet undetermined from reports at hand, was central in the western part of the China Sea.

Two tropical disturbances occurred in Mexican west coast waters this month. The first was in the process of formation as early, at least, as August 2, when fresh southeasterly to easterly gales, though with little depression of the barometer, were encountered from Cape Corrientes southward to a point west-southwest of Acapulco. On the 4th and 5th further gales from some easterly direction were encountered off Acapulco and near the western entrance to the Gulf of Tehuantepec. The lowest pressure given in these several instances was 29.72 inches, with a fresh gale from east-northeast, reported by the Danish motorship *Tongking*, in 15° N., 98° 05′ W. The principal and determining report as to the severe nature of this storm came from the Canadian tanker *Ontariolite*, Capt. James Brown, observer John White, Talara, Peru, to Vancouver. This vessel entered the storm area with moderate northerly gales at 3 p. m. of the 5th, position not given, but south of the eighteenth parallel. At midnight she had a strong gale from northwest with heavy southeast swell and torrential rains. The wind rose to a storm from northwest, barometer 29.40, at 5 a. m. of the 6th, and increased to a hurricane, with precipitous seas, at about 7 a. m., lowest pressure 28.80 inches, in position estimated by the observer at 18° 26′ N., 106° 24′ W. By 9 o'clock the wind had changed to southwest, 10, and the barometer had risen to 29.64, with the hurricane rapidly passing north of the *Ontariolite*. By noon the gale had diminished to force 7, direction south by west, and pressure had risen to 29.80. No later report of the storm has been received.

The second cyclone occurred in the same general vicinity from the 28th to the end of the month, and was experienced by several vessels, reports of which appear in the table of gales and storms. This disturbance was first observed as a storm near 16° N., 98° to 100° W., on the 28th, but observations from the steamship *Santa Eulalia* on the 29th indicate unsettled weather, with depressed barometer near 15° N., 109° W., showing that cyclonic conditions were spread over a considerable area. On the 30th gales of reported force 9 occurred from Acapulco to Cape Corrientes. Mr. A. Larsen, third officer of the steamship *Absaroka*, reported of this date that "at 11.30 a. m. the barometer had dropped to 29.64 while nearing the coast south of Cape Corrientes. The wind suddenly shifted to west, force 9, and the northerly sea was terrific. The swell from southeast caused the water to boil and churn, throwing up clouds of water." The lowest observed pressure was 29.42 inches, observed on board the Dutch steamship *Moerdijk* at 8 a. m. of the 30th, in 18° 08′ N., 104° 14′ W. The observer on the *Santa Eulalia* said that "according to reports from Mexican stations this storm later passed over the southern end of Lower California."

Another cyclonic disturbance in the southeastern Pacific is indicated by a further report from the *Santa Eulalia*, the vessel encountering rough, unsettled weather, depressed barometer, shifting winds, and high, confused seas on the 21st and 22d near 20° N., 135° to 139° W.

The prevailing direction of the wind at Honolulu in August was from the east, with a maximum velocity of 22 miles an hour from the east on the 3d. The average velocity for the month was the lowest on record since 1905.

Fog continued frequent between the fortieth and fifty-fifth parallels, especially west of longitude 160° W. About 50 per cent of the days were foggy over a considerable area south of the Aleutian Islands, the occurrence thence diminishing slowly toward northern Japan and rapidly toward the American continent. Along the American coast, however, the percentage rose rapidly, especially off California, along the central coast line of which fog was observed on at least 17 days.

It was during August that the first nonstop flight ever made across the Pacific Ocean was accomplished by the German airship *Graf Zeppelin*. The airship left Kasumagaura Airport, Tokyo, Japan, at 2:13 a. m., August 23, eastern daylight time, and was sighted outside San Francisco Bay at 10.02 p. m. of the 25th. The actual flying time from shore to shore was about 68 hours and 12 minutes. The weather conditions attending the flight were as good as could be expected. A shallow low-pressure area lay east of Japan at time of leaving, but was not strong enough to cause rough conditions. Some thick weather was encountered south of the Aleutians. Owing to the presence of a persistent cyclone over the Gulf of Alaska and neighboring waters southward, the *Zeppelin*, upon advices from the United States Weather Bureau, took a more southerly course than was originally intended, her most northerly position being latitude 46° N. in longitude 161° W.